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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,242	08/01/2003	Matvey Lvovskiy	MLV-1	1604
7590 06/30/2004			EXAMINER	
Boris Leschinsky P.O. Box 72 Waldwick, NJ 07463			SAADAT, CAMERON	
			ART UNIT	PAPER NUMBER
			3713	

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/631,242	LVOVSKIY, MATVEY	
	Examiner	Art Unit	
	Cameron Saadat	3713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-15 and 19-21 is/are rejected.
- 7) ☒ Claim(s) 7 and 16-18 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/1/03</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pardes et al. (USPN 4,137,651; hereinafter Pardes) in view of Marshall et al. (USPN 4,290,757; hereinafter Marshall).

Regarding claim 1, Pardes discloses a training simulator for sharp shooting comprising: a weapon unit 1 equipped with an emitter unit 2 comprising a light emitter and a cordless firing event detection means, said weapon unit also equipped with a means to activate both the light emitter and the firing event detection means 20 simultaneously upon pulling a trigger 33 of said weapon unit; a screen unit 13 comprising a screen having a diffusing reflective surface and a cordless firing event detection sensor 20 positioned to receive a signal sent by said firing event detection means and adapted to send out a firing event electrical signal, an optical unit having an optical target generation means 11 to project an optical target onto said screen, said optical unit also equipped with a sensing means 14 to detect whether said target has been hit by a light beam

Art Unit: 3713

from said light emitter and reflected by said screen, said sensing means adapted to send a electrical signal to determine whether the target has been hit (See Fig. 1). Pardes discloses all of the claimed subject matter with the exception of explicitly disclosing a *central computer* adapted to control the position of the optical target. However, Marshall discloses a system for firearm training comprising computer 37 for controlling the position of the target via servo system 25. Hence, in view of Marshall, it would have been obvious to an artisan to modify the target projection system described in Pardes, by controlling the position of the target with a computer, in order to provide a moving target according to a predetermined coordinate system, and thereby determine if the target has been hit based on the coordinate system (See Marshall, Col. 7, lines 35-43).

Regarding claim 2, Pardes discloses a simulator, wherein the cordless firing event detection means is an infrared emitter 2 and said cordless firing event detection sensor is an infrared sensor 14 (See Fig. 2C).

Regarding claim 3, Pardes and Marshall discloses all of the claimed subject matter with the exception of explicitly disclosing an optical aiming device or a telescoping viewfinder mounted on the weapon. However, it is the examiner's position that optical aiming devices, such as telescoping viewfinders, are well known in the art for aiding a shooter with aiming. Hence, it would have been obvious to an artisan to modify the weapon described in the combination of Pardes and Marshall, by providing an optical aiming device, in order to aid a shooter with aiming (See Gammarino et al.)

Regarding claim 4, Pardes discloses a simulator, wherein said light emitter 2 is a laser light emitter.

Regarding claim 8, Pardes discloses a simulator, wherein said screen unit further comprises a visual display to indicate the shooting score (Col. 5, line 8).

Regarding claim 9, Pardes discloses a simulator, further comprising a video projector 11

Art Unit: 3713

to project prerecorded or computer generated surrounding scenes onto said screen.

Regarding claim 10, Pardes discloses all of the claimed subject matter with the exception of explicitly disclosing that the video projector is controlled by a central computer. However, Marshall discloses a system for firearm training comprising computer 37 for controlling the position of the target via servo system 25. Hence, in view of Marshall, it would have been obvious to an artisan to modify the target projection system described in Pardes, by controlling the video projector with a computer, in order to provide a moving target according to a predetermined coordinate system, and thereby determine if the target has been hit based on the coordinate system (See Marshall, Col. 7, lines 35-43).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pardes et al. (USPN 4,137,651; hereinafter Pardes) in view of Marshall et al. (USPN 4,290,757; hereinafter Marshall), further in view of Rosa et al. (USPN 6,575,753; hereinafter Rosa).

Regarding claim 5, Pardes and Marshall disclose all of the claimed subject matter with the exception of explicitly disclosing that the laser light emitter is further equipped with a lens to project onto the screen a laser light beam having a diameter of about 10 mm to about 20 mm. However, Rosa teaches a firearm simulator comprising an optics package, indicating that the optics package should include any suitable lens for projecting a laser beam (Col. 18, lines 19-22). Hence, in view of Rosa, it would have been obvious to one of ordinary skill in the art to modify the light emitter described in the combination of Pardes and Marshall, by providing a suitable lens to project the laser light beam for enabling a target to detect the beam.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pardes et al. (USPN 4,137,651; hereinafter Pardes) in view of Marshall et al. (USPN 4,290,757; hereinafter Marshall), further in view of Shechter et al. (US Patent Application Publication 2003/0003424; hereinafter Shechter).

Regarding claim 6, the combination of Pardes and Marshall disclose all of the claimed

Art Unit: 3713

subject matter with the exception of explicitly disclosing that the light emitter is positioned on said weapon unit with a predetermined tilt to compensate for angle aiming offset. However, Shechter discloses a firearm simulator comprising a light emitter that is positioned on a weapon with a predetermined tilt to compensate for angle aiming offset (P. 3, paragraph 31). Hence, in view of Shechter, it would have been obvious to an artisan to modify the light emitted described in the combination of Pardes and Marshall, by positioning the light emitter with a predetermined tilt, in order to compensate for angle aiming offset.

Claims 11-15 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sherburne et al. (USPN 4,163,328; hereinafter Sherburne) in view of Marshall et al. (USPN 4,290,757; hereinafter Marshall).

Regarding claims 11 and 20, Sherburne discloses a training simulator for sharp shooting comprising: a weapon unit 35 equipped with a light emitter and a means to activate the light emitter upon pulling a trigger of said weapon unit to generate a firing light beam, a screen 12 having a diffusing reflective surface, an optical unit having an optical target generation means 13 to project an optical target beam onto said screen, said optical unit equipped with a sensing means 18 adapted to send an electrical signal indicating a presence or absence of a firing light beam from said light emitter as reflected by said screen, said optical unit comprising a movable mirror system 16 and 30 adapted to both direct said optical target beam from said optical target generation means to any predetermined area of said screen and to direct said firing light beam from said screen into said sensing means, said moveable mirror system providing for a common travel path along at least a portion of the optical axes of said light beam and said optical target beam (See Fig. 2). Sherburne discloses all of the claimed subject matter with the exception of explicitly disclosing a *central computer* adapted to control the position of the optical target. However, Marshall discloses a system for firearm training comprising computer 37 for controlling the position of the target via servo system 25. Hence, in view of Marshall, it would

Art Unit: 3713

have been obvious to an artisan to modify the target projection system described in Sherburne, by controlling the position of the target with a computer, in order to provide a moving target according to a predetermined coordinate system, and thereby determine if the target has been hit based on the coordinate system (See Marshall, Col. 7, lines 35-43).

Regarding claim 12, Sherburne discloses a simulator, wherein the sensing means is a light sensor 18 (Col. 3, lines 30-34).

Regarding claim 13, Sherburne discloses all of the claimed subject matter with the exception of explicitly disclosing that the light sensor is a video camera. However, it is the examiner's position that using a video camera to detect a light beam projected toward a target is well known in the art. Thus, it would have been an obvious matter of choice well within the capabilities of one skilled in the art to utilize a video camera to detect a light beam projected on a target in order to determine if a target has been hit by the light beam.

Regarding claim 14, Sherburne discloses a simulator, wherein said optical unit is further equipped with a light divider 30 to reflect said firing light beam from the mirror system 16 into the sensing means 18 and to transmit said optical target beam from the target generating means 13 to said mirror system (See Fig. 2).

Regarding claim 15, Sherburne discloses a simulator, wherein said light divider is a dichroic mirror 30 (See Fig. 2).

Regarding claim 19, Sherburne discloses a simulator comprising target generation means 13. The combination of Sherburne and Marshall does not explicitly disclose that the target generation means is a laser. However, it is the examiner's position that the feature of generating and projecting a laser target is well known in the art, and would have been obvious to one of ordinary skill in the art to modify the target generation means described in Sherburne, by providing a laser target generation means in order to project a target controlled according to a coordinate system.

Art Unit: 3713

Regarding claim 21, Sherburne discloses a simulator further equipped with a video projector 13 to project a prerecorded or computer-generated surrounding scene detector 18 for indicating a hit. It is not explicitly stated that the shooting score is displayed on the screen. However, it is the examiner's position that the feature of displaying score information in a firearm simulation is well known, and it would have been obvious to an artisan to modify the hit detection system describe in the combination of Sherburne and Marshall, by providing score information on the display in order to provide feedback to a shooter.

Allowable Subject Matter

Claims 7 and 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

Patentability is seen in, although not limited to: dependent claim 16, the combination of elements specifically claimed including a weapon unit having a light emitter and a means to activate the light emitter upon pulling a trigger to generate a firing light beam; a screen having a diffusing reflective surface, an optical unit having an optical target generation means to project an optical target beam onto the screen, the optical unit equipped with a sensing means adapted to send an electrical signal indicating a presence or absence of a firing light beam from the light emitter as reflected by the screen, said optical unit comprising a movable mirror system adapted to both direct the optical target beam from said optical target generation means to any predetermined area of said screen and to direct said firing light beam from said screen into said sensing means, the moveable mirror system providing for a common travel path along at least a portion of the optical axes of said light beam and said optical target beam, and adapted to control the position of the optical target; and wherein the movable mirror system comprises *a pair of rotating mirrors and a fixed mirror, the position of the rotating mirrors individually controlled by the central computer,*

Art Unit: 3713

the mirrors rotating about optical axes perpendicular to each other. The closest prior art of record does not teach or fairly suggest this feature in the combination.

Patentability is also seen in, although not limited to: dependent claim 7, the combination of elements specifically claimed including a screen having a reflection capacity in the range of visible light of at least 80 percent and a diffusing capacity from about 20 to about 30 degrees at the level of about 50 per cent reduction of its reflective coefficient. The closest prior art of record does not teach or fairly suggest this feature in the combination.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Gammarino et al. (USPN 4,086,711) – disclose a firearm training device comprising a telescopic site for aiming.
- Eichweber (USPN 4,854,595) – discloses a firearm training device comprising a reflective target.
- Suzuki (USPN 5,366,229) – discloses a firearm training device comprising a reflective target.

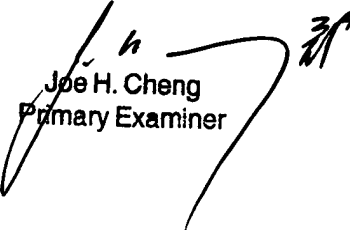
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cameron Saadat whose telephone number is 703-305-5490. The examiner can normally be reached on M-F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Derris Banks can be reached on 703-308-1745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3713

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CS


Joe H. Cheng
Primary Examiner